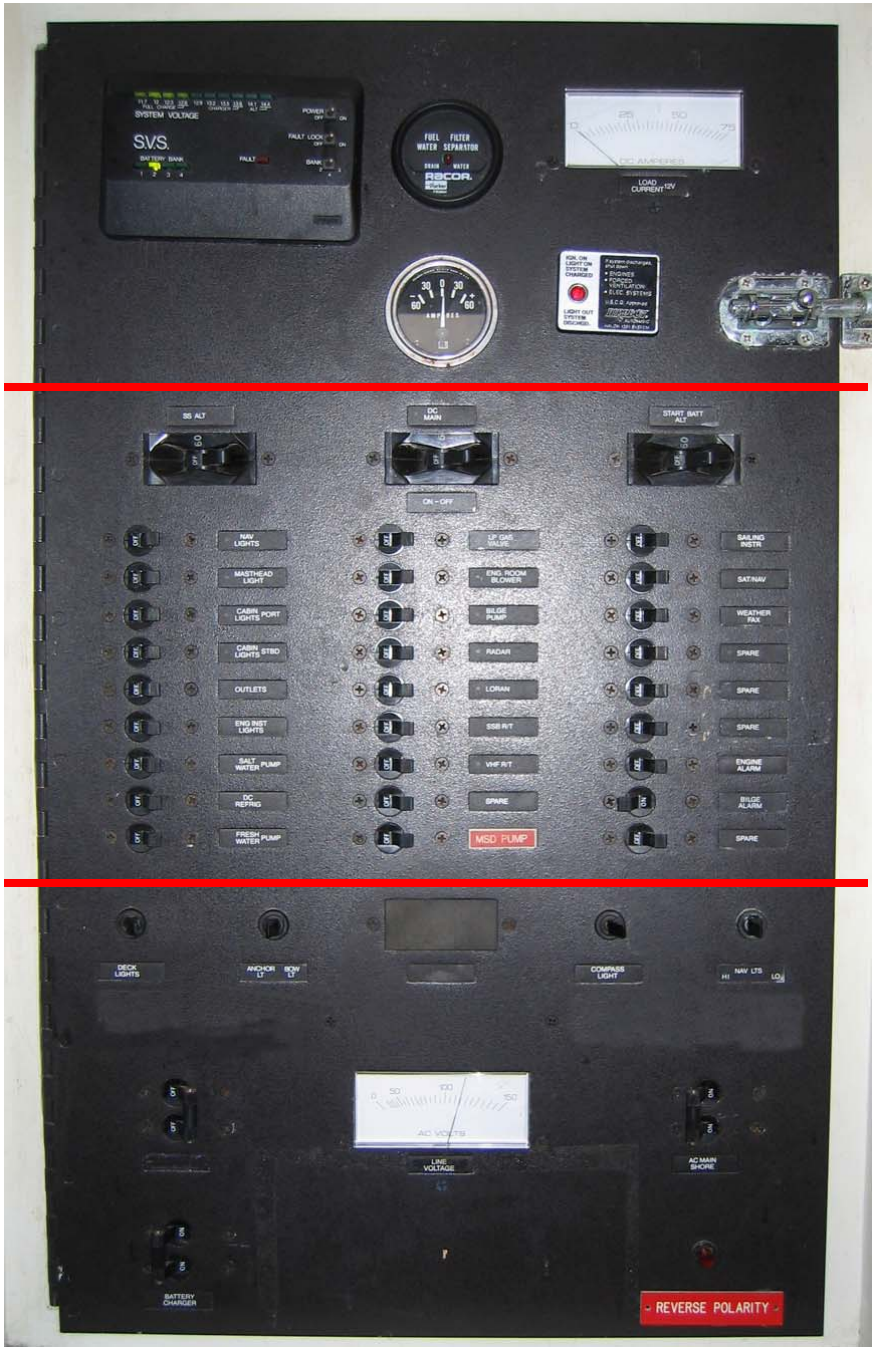
Electronics Equipment

SCRF Winter Training

Nav Station


SSB
WEFAX
Speaker
SW
VHF
Radio
Radar
Antenna Sw
Breaker
Panel
Perko Sw

Breaker panel



Monitoring section

DC section

AC section

ICOM VHF RADIO


VHF RADIO


SQUELCH
VOLUME
VHF MARINE TRANSCEIVER
IC-M100
HI/LO
W X
CH 16
DIAL
RESET
ICOM
SQUELCH
VOLUME
VHF MARINE TRANSCEIVER
IC-M120
USA
16
ICOM
HAILER
HI/LO
L-SCAN
WX
DIAL
INCOM
USA
DUAL
MR
CH-16

ICOM VHF

- VHF Radios are used to communicate
  - Line of Sight (LOS) 10-20 Miles
  - Ship to Ship when close to one another
  - Shore stations LOS
    - Some Coast Guard Stations can communicate up to 120 miles.
  - USNA Santee Basin uses channel 82A
  - Small Craft uses channel 12

Prior to turning on radio

- Verify the **SPEAKER** switch is in the **BOTH** position.
- Set **SQUELCH** at 10 o'clock.
- Set **VOLUME** in mid position

ICOM VHF

- The radio is turned on by momentarily depressing pressing the **Volume Control**.
- The radio **WILL** turn on on channel 16
  - If the radio does not display 16 in the display check the breaker panel.
- To use the radio on **ANY** frequency other than **CHANNEL 16** press the **DIAL** button
  - The radio will display the channel last used.

ICOM VHF

- Use the **Channel Knob** to select the channel you want.
  - If you call Santee Basin Control and do not hear an answer verify the radio is set in the US frequency mode.

ICOM VHF

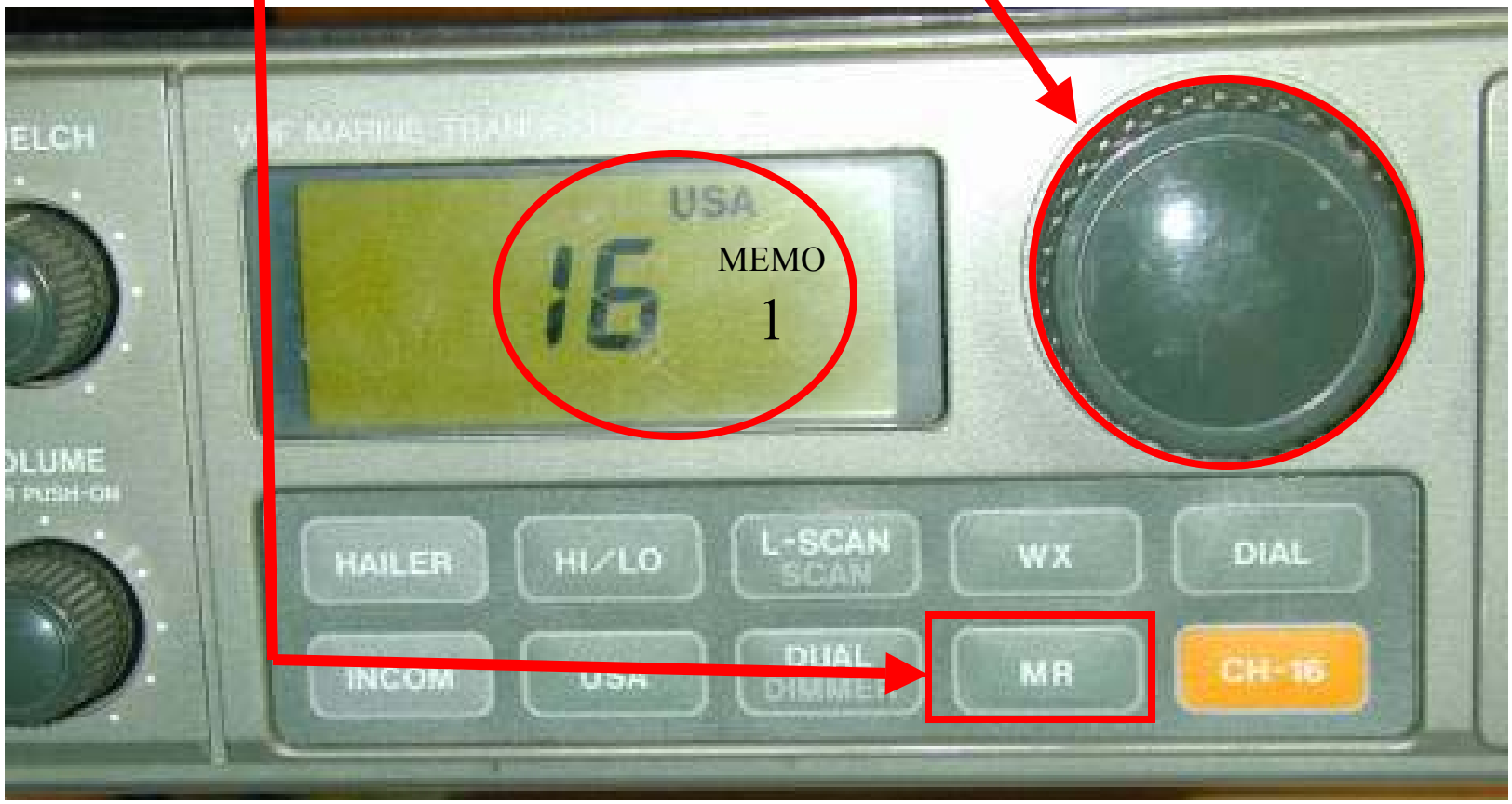
- Scanning Channels 9, 16, 13, & 82A
  - In order to scan four channels **Memory Scan** must be used
- Since the majority of Navy 44s have Icom 120, this radio will be used for demonstration.
- Vessels equipped with Icom M100 consult your manual.

Programming ICOM VHF

- Once the radio is properly programmed it should not need reprogramming unless someone has made a change.
- The first four channels should be programmed for:
  - Channel **9**
  - Channel **16**
  - Channel **13**
  - Channel **82A**
- The remaining channels should be empty

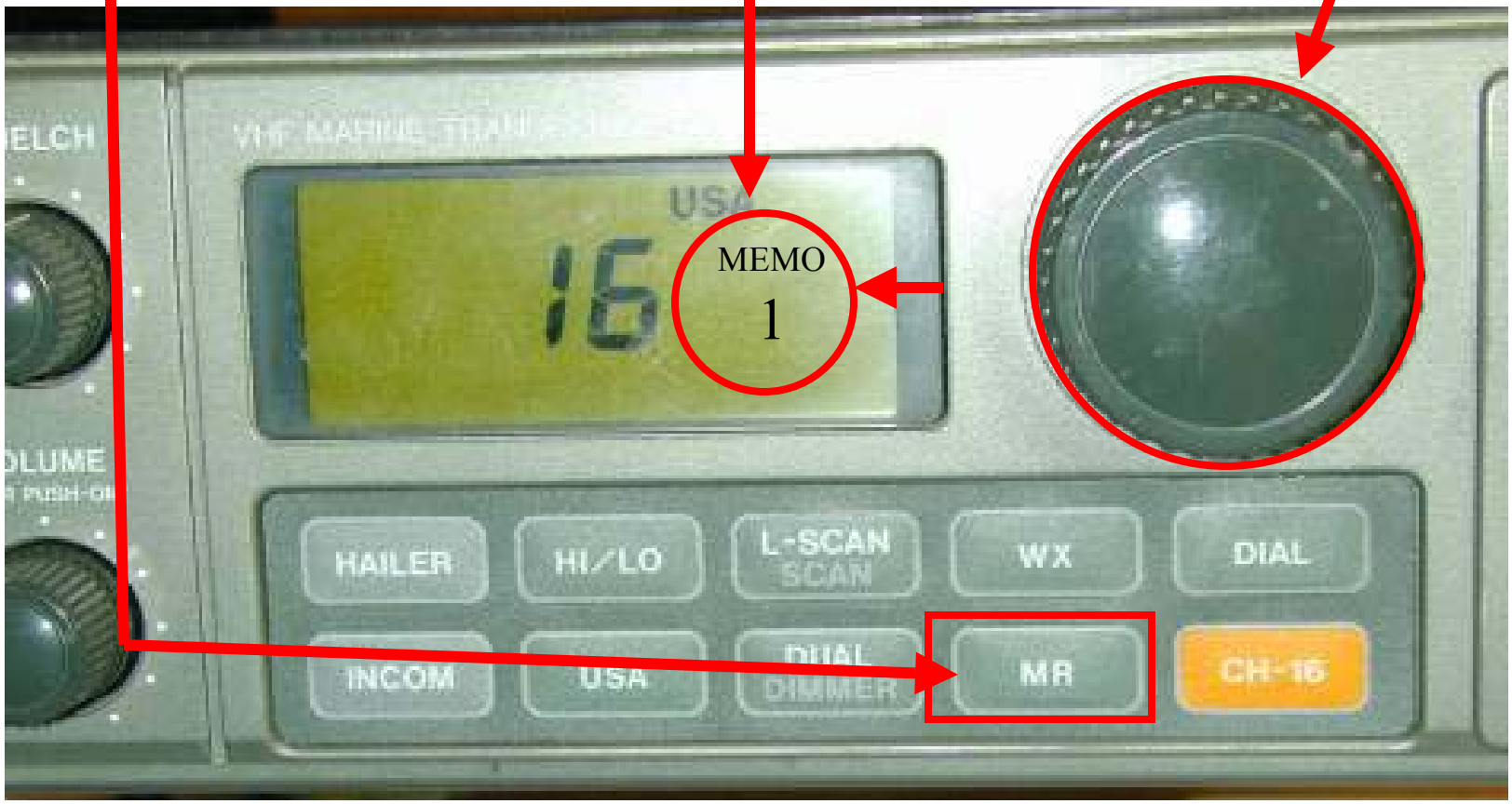
Verifying Memory Channels

- Press **MR** and turn the **DIAL** to verify the contents of each channel.



Writing a Memory Channels

- Press **MR** and hold until ***MEMO*** flashes,turn the **DIAL** to Memory channel you want to program.

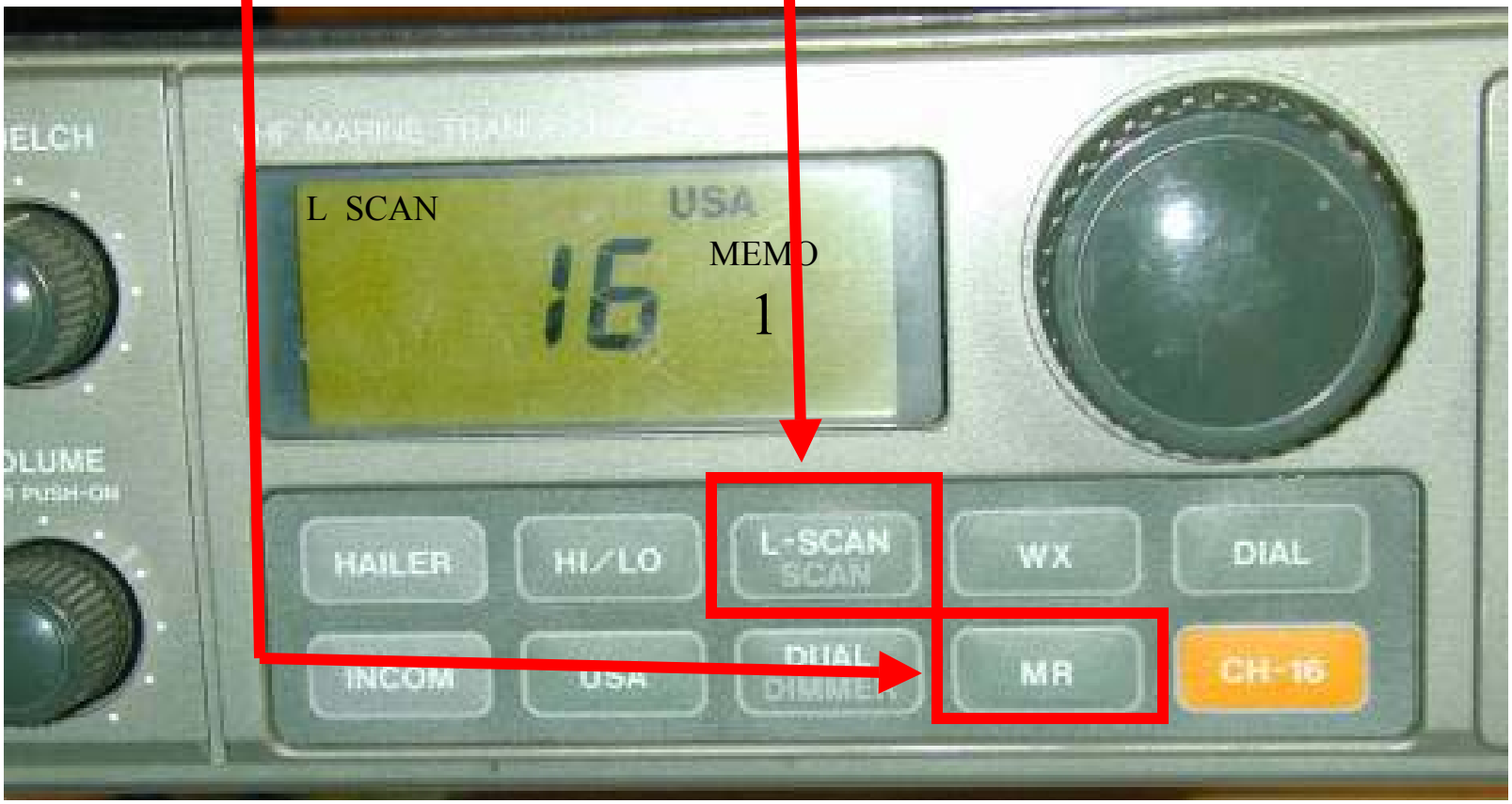


Writing a Memory Channels

- Press **DIAL** and select the desired **channel** , push **MR** complete programming.

Scanning Memory Channels

- Press **MR** and press **L-SCAN**
- The radio will scan occupied memory channels



POWER OFF

- Momentary depress and release the **VOLUME** knob

SEA 222 Single Side Band (SSB)


SSB
Antenna
Switch

SEA 222 SSB


1
2
3
FREQ
TRANS
4
5
6
FREQ
7
8
9
SQL
CHAN
FREQ
0
ENT
EMER
VOLUME
OFF
SEA Inc. A UNIT OF DATAMARINE INTERNATIONAL

SEA 222 SSB

- Single Side Band (SSB) radios are designed to operate over long distances. Not LOS as VHF radios.
- Frequency usage varies with atmospheric conditions
  - Sun spots
  - Time of day
    - Day time = higher frequencies
    - Night = lower frequencies

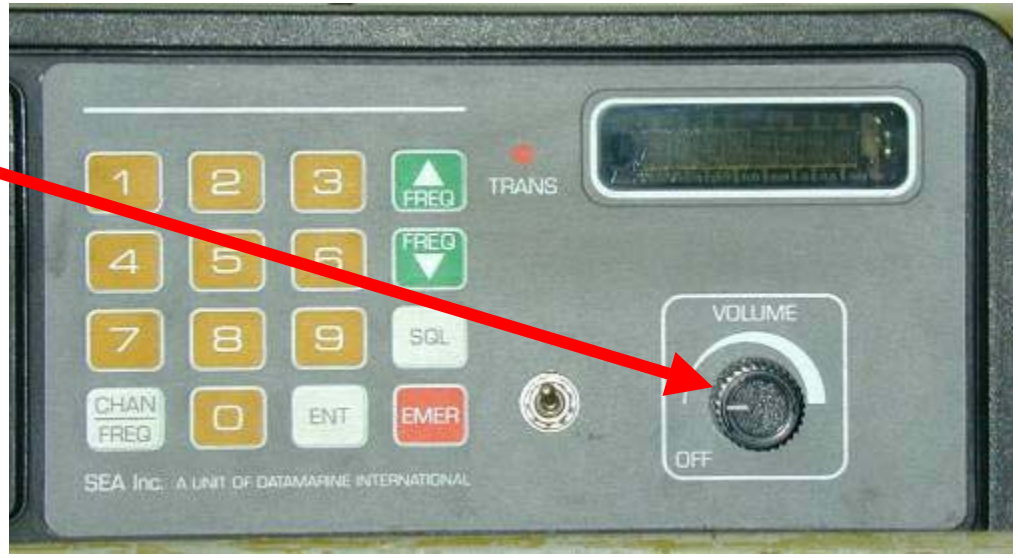
SEA 222 SSB

- The Stevens Engineering Associates radio **DOES NOT ALLOW DIRECT ENTRY OF FREQUENCIES**.
- All frequencies are installed as **ITU channels** or in **memory bins**.
- If a frequency is entered in the display it will be **RECEIVE ONLY**

SSB POWER ON

- Verify the antenna switch is set to HF

- Turn the radio VOLUME CONTROL clockwise to mid range.



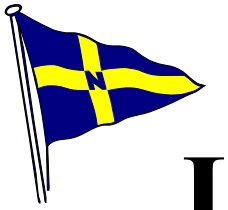
SEA 222 SSB

- When the radio comes on it will be on 2182 KHz. If no display check CB.

To recall an ITU Channel

To select an ITU channel enter the three or four digit channel number via the key pad

Press **ENT** to activate frequency



US Coast Guard Frequencies

ITU Channel	Transmit	Receive
424	4134	4426
601	6200	6501
816	8240	8764
1205	12242	13089
1625	16432	17314

ALL NON ITU FREQS

- **All non ITU frequencies will be programmed in BINS 10 to 99**
- Once programmed the user simply has to enter the **two digit bin number** to use the frequency.
- **Programmed bin numbers will be posted next to the radio**

To recall BIN

To select BIN - enter the two digit BIN number via the key pad

Press **ENT** to activate frequency

Programming a BIN

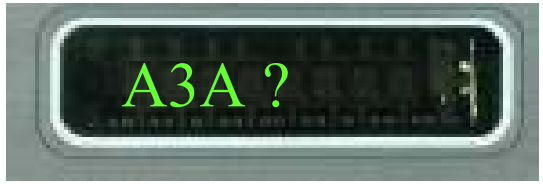
- Determine the transmit and receive frequencies in KHz's
- Determine the BIN in which the frequency pairs will be stored.
- Add the BIN and frequency to the recall list.

Programming a BIN

- Press 7 **8** s
- Display will show ..Program then
- BIN ?
- Key in predetermined BIN # **XX**
- Press **ENT**

Programming a BIN

- Radio will display
- KEY TX FREQ in Hertz 111750
  - Press "**ENT**"
- Radio will display
- Press "**ENT**"



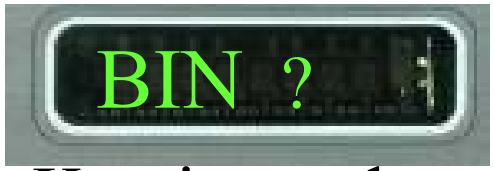
Programming a BIN

- Radio will display
- KEY RX FREQ in Hertz
  111750
  - Press “ **ENT** ”
- Radio will display
- **Wait 10 seconds and the radio will leave the programming mode**

Reprogramming a full BIN

- Press 7 **8** s
- Display will show

then



- Key in predetermined BIN # **XX**
- Press **ENT**

Reprogramming a full BIN

- Radio will display

- KEY any digit **1**
  - Press **ENT**
- Radio will display

- **Proceed as in regular programming mode**

RADIO HAS TO BE PROGRAMMED CORRECTLY ONLY ONCE

POWER OFF

- To turn the SSB off turn the Volume Control fully counter clockwise

Raytheon Radar


Radar

Purpose

- The purpose of Radar installation on a Navy 44
  - Provide a method of detection and determining the range of another vessel
  - Provide a method of detection and determining the range of a land mark for navigation.
  - Due to no gyro repeaters on a Navy 44 relative bearings are not recommended.

The differences

- When the Radar is used for vessel detection it is tuned for maximum target acquisition.
- When the Radar is used for navigation it is optimized for target definition.

Power ON

- Before powering on the Radar set
  - ***TUNE*** to mid range
  - ***RAIN CL*** full counter clockwise
  - ***SEA CL*** full counter clockwise
  - ***GAIN*** to mid range
- Press the ***ST-BY/OFF*** key
  - It takes 90 seconds to warm up
  - When the Radar is ready it will display *ST-BY*
- Press the ***X-MIT/OFF*** to operate.

TUNE CONTROL

- The TUNE CONTROL is used to tune the receiver in the antenna for maximum targets on the display
- Tune for peak indicator bars on screen
- Re tune for each range change.

GAIN CONTROL

- The GAIN CONTROL adjusts the strength of the incoming video and noise.
- The GAIN CONTROL is usually set for the best target presentation on the range scale selected with noise speckles in the background.
- Caution must be used when setting the GAIN CONTROL, if set too low targets will be missed.

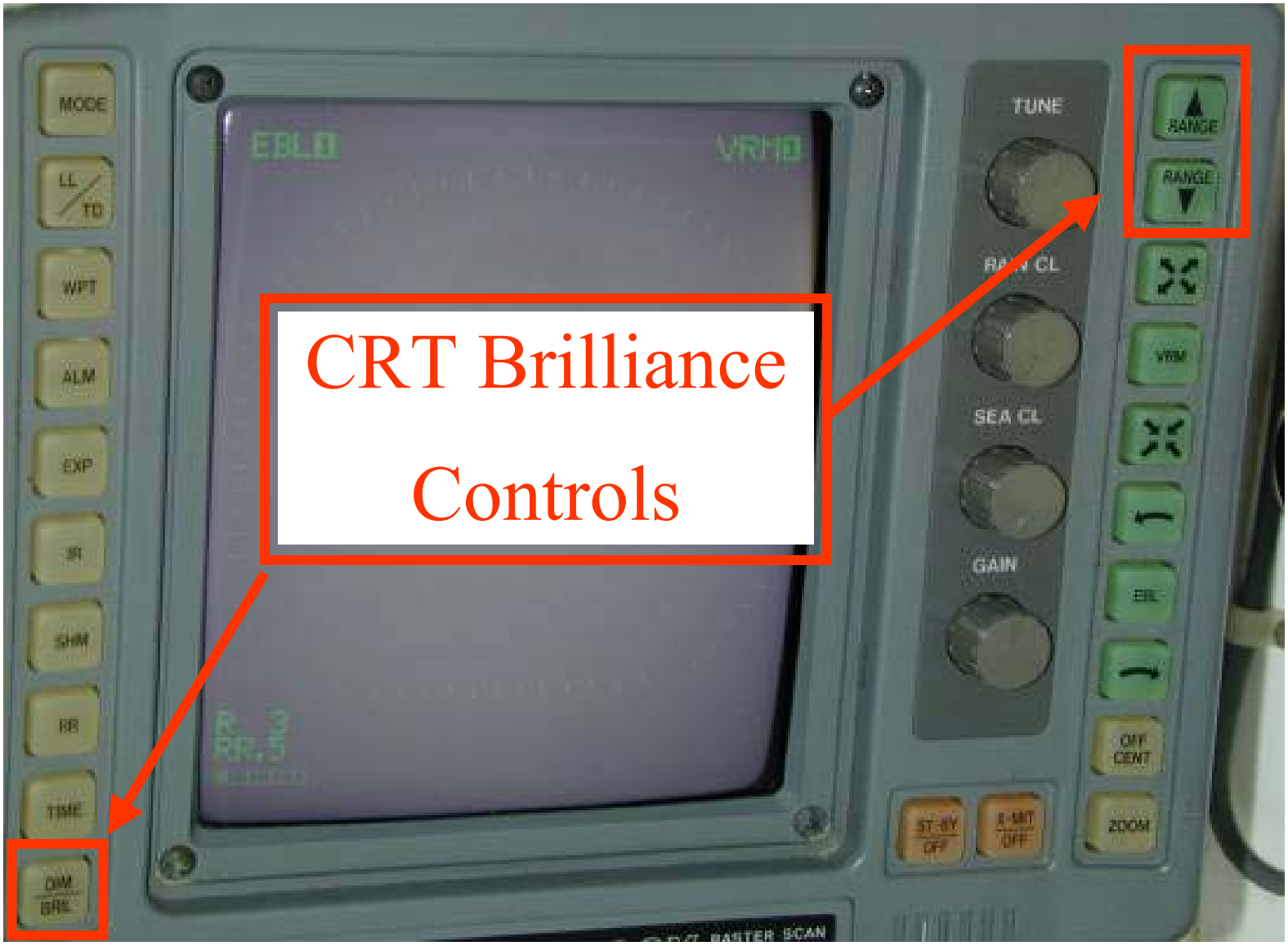
SEA CLUTTER (SC)

- The SC CONTROL is used on short ranges to suppress the effects of sea clutter near the boat.
- SC should be set to the point where nearby clutter is reduced to small noise dots and **small targets can still be distinguished.**

RAIN CLUTTER (RC)

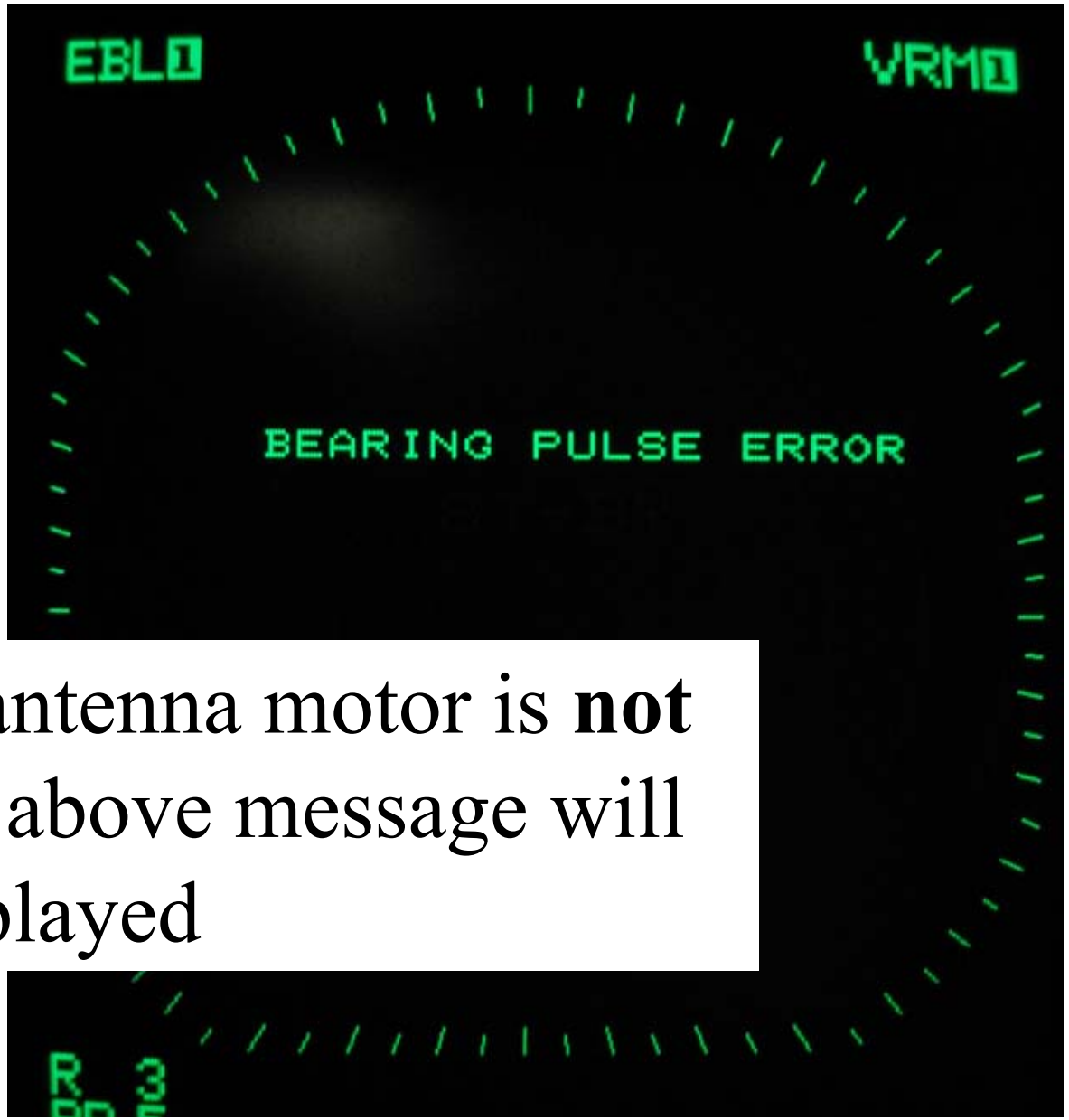
- RC is used to reduce echoes from events such as rain and snow.
- RC when adjusted properly will improve detection of targets inside the area of obscuration.
- **If set too high small targets will be missed**.


MODE
LL TD
WPT
ALM
EXP
SHM
RR
TIME
DIM BRL
EBL
VRM
TUNE
RANGE
RANGE
VRM
EBL
OFF CENT
ZOOM
ST-BY OFF
X-MIT OFF
ST-BY
Power on
Radar

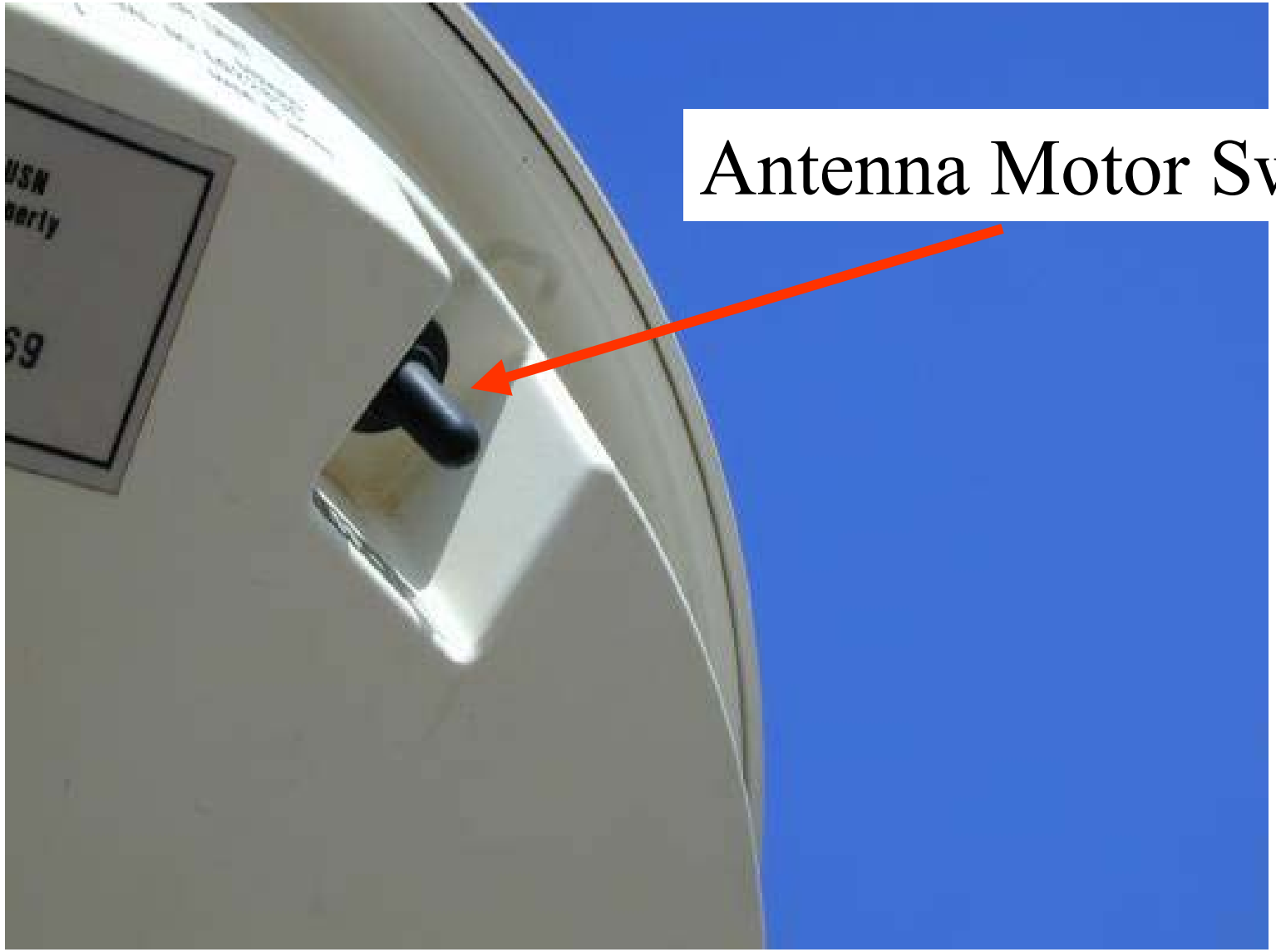

CRT Brilliance
Controls
MODE
LL/TD
WPT
ALM
EXP
IR
SHM
RR
TIME
DIM BRL
TUNE
SEA CL
GAIN
RANGE
RANGE
VRM
EBL
OFF CENT
ZOOM
ST-BY OFF
EBL
VRM

Range Setting

- It is recommended that the Radar be set at a range of 6 Miles for initial target acquisition .
- The range will change based on actual needs.
- Range is changed by using the key



If the antenna motor is **not on** the above message will be displayed


Antenna Motor Switch

When all goes well

Tune Indicator

Targets

Land

Range

Range ring Distance


RAIN CL
SEA CL
GAIN
R 12
RR 2
Gain too High

Variable Range Marker

On - Off Switch

Marker movement

Out

In

Distance

Variable Range Marker

Stand By Mode

- To return the unit to the Stand By mode
  - Press the X-MIT/Off key

Turning Power Off

- Press both X-MIT/OFF and ST-BY/OFF keys simultaneously

Furono Weather Fax (WEFAX)

Furuno WEFAX

- The Furuno FAX 208 is a receiver printer.
- Charts are received by selecting a station by **call sign, not by frequency**.
- This presentation is about how to setup the WeFax to receive a weather map from a station already setup. (for additional information see “Furuno Owner’s Manual”

Furuno WEFAX

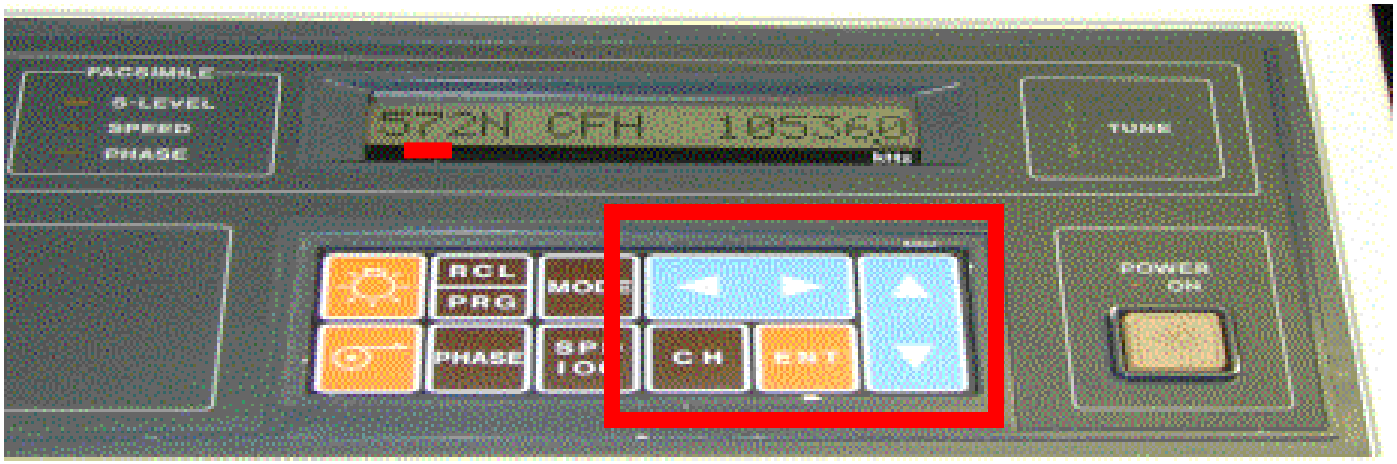
- Power on button
  - The LCD display will show time, station tuned.
  - If garbled data is present consult manual.
  - If no display check breaker on power panel.
- Check Antenna Switch is in FAX position.

Furuno WEFAX

- Press and pop out Volume control
- Turn to mid position and verify presence of a signal. Adjust to acceptable level.

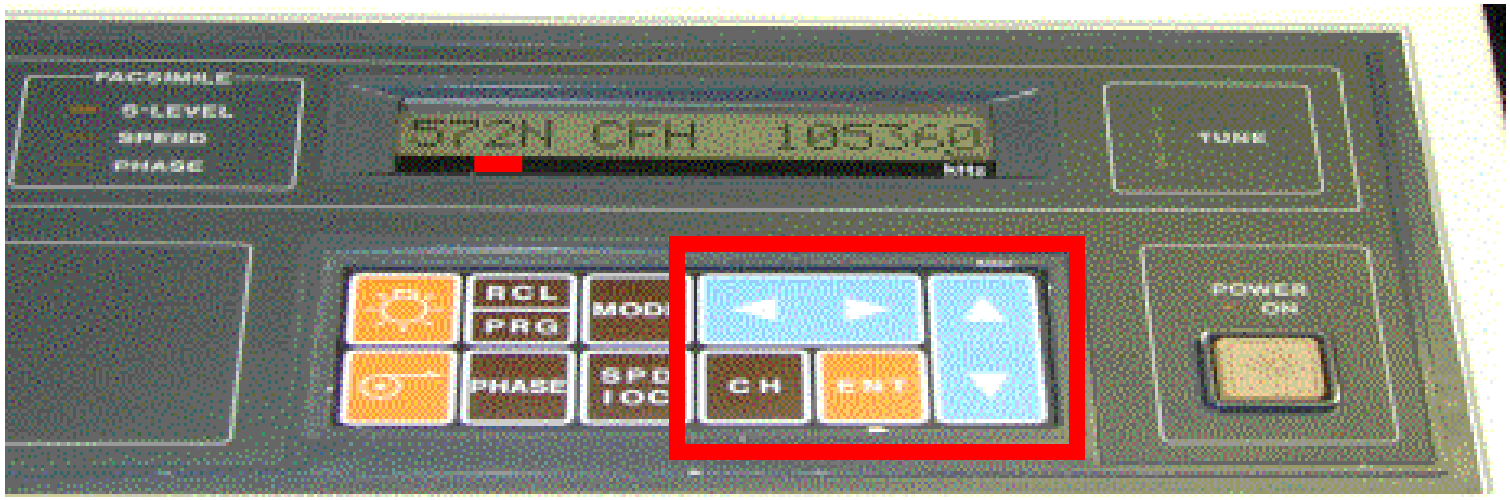
Furuno WEFAX

- Select station (NMF{56X}, CFH{57X})
  - Press CH Key
  - Use the ◄ key to have the cursor underscore the second digit. (cursor starts on far right)
  - Use the ♦♦ to select either NMF or CFH



Furuno WEFAX

- Select frequency (NMF{56X}, CFH{57X})
  - Press CH Key
  - Use the ◄ ► key to have the cursor underscore the third digit.
  - Use the ♦♦ to select the frequency
  - Then press ENT to receive frequency



Station

Frequency

Furuno WEFAX

- If a chart is being transmitted you will hear the sound, and the WeFax should start automatically at the beginning of the next chart.
- NOTE: CFH (57X) transmits RTTY half of the time.
- If a * is selected for the third digit the WeFax will search for the best frequency.

Furuno WEFAX

- To manually begin receiving a fax
  - Mode Manual Start: ?
  - ENT SPD/IOC: 120/576
  - ENT
- To manually stop receiving a fax
  - Mode Manual Stop: ?
  - ENT

Furuno WEFAX

- When done POWER DOWN the unit
- Change the Antenna Switch back to SSB

Furuno WEFAX

- Changing paper
  - Consult manual.
    - Verify paper feels damp
    - If the paper is dry and brittle it is BAD
  - **SAVE END CAPS.**

Intermediate Trouble Shooting and Emergency Repair

General Electrical Systems

- No Power to multiple Systems
  - Verify DC Breakers are ON.
  - Verify Perko Switches are properly set.
  - Verify Status of Battery Bank


DC Breaker
DC MAIN
ON - OFF
SS ALT
START BATT ALT
NAV LIGHTS
MASTHEAD LIGHT
CABIN LIGHTS PORT
CABIN LIGHTS STBD
OUTLETS
INSTR LIGHTS
SALT WATER PUMP
DC REFRIG
FRESH WATER PUMP
LP GAS VALVE
BILGE PUMP
RADAR
SEA 222
VHF R/T
MSD PUMP
SAILING INSTR
WEATHER FAX
SAT PHONE
ENGINE ALARM
BILGE ALARM

Nav Station Seat

Battery Switch

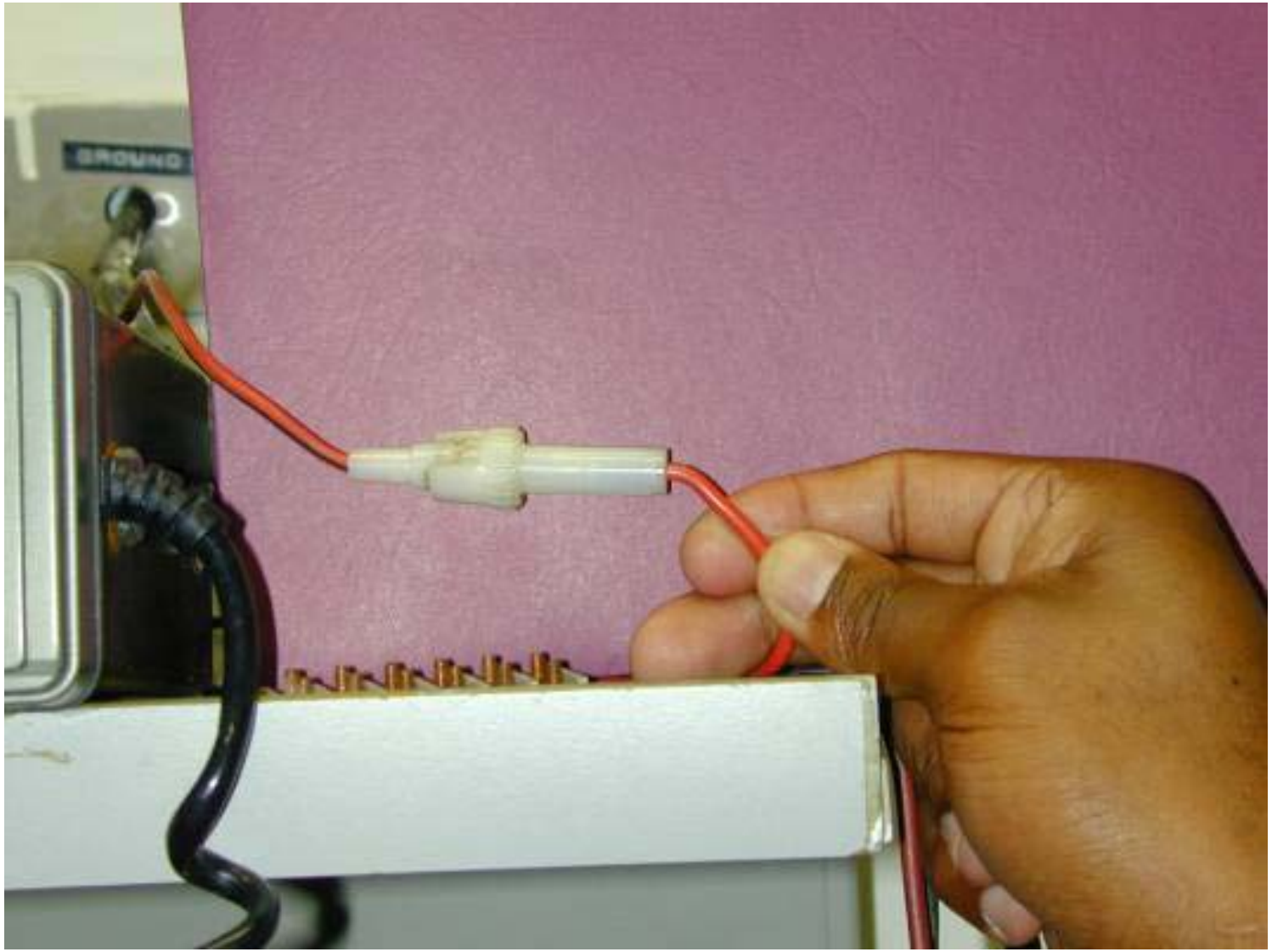

SHIPS SERVICE
Both
MADE IN U.S.A.
GUEST
1
2
Off
On
MADE IN U.S.A.
GUEST
CAUTION
Off
ENGINE SERVICE

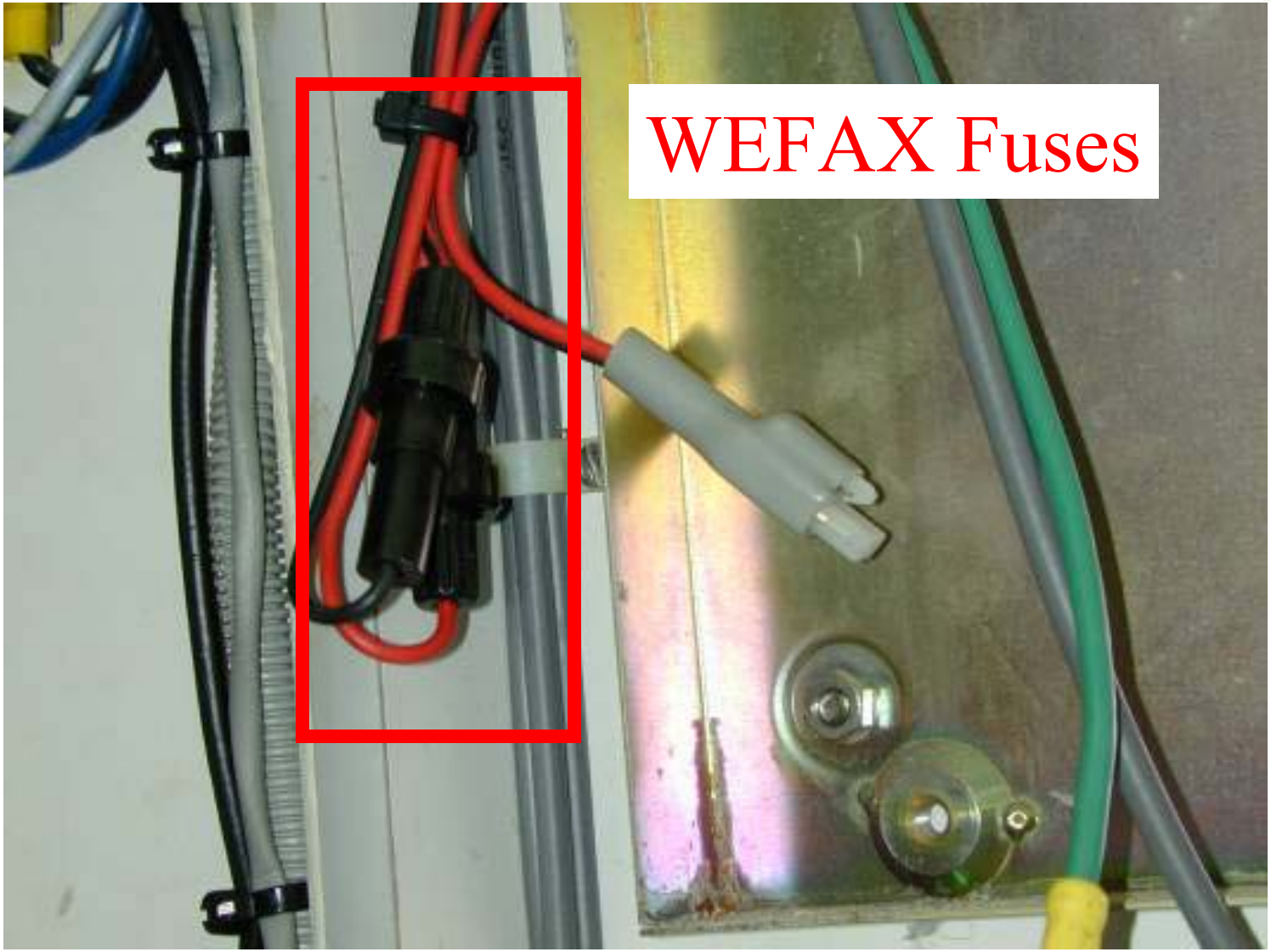
Battery Status

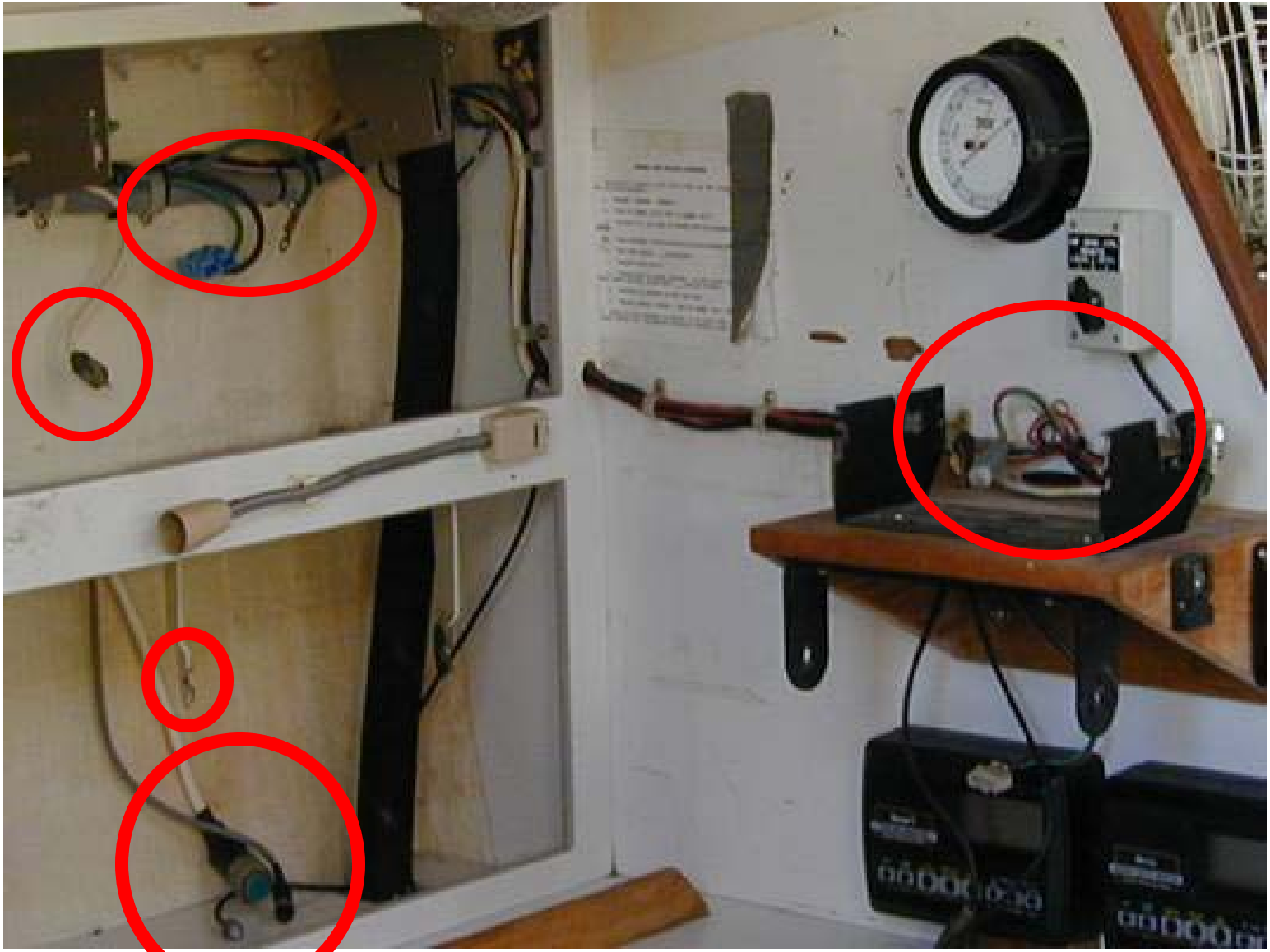
Single System does not power up

- Check **Power Switch** at Equipment
- Check **Circuit Breaker** at Power Panel
- Check to make sure equipment is **not wet**.
- Verify **Connectors Seating** for the equipment.
- Verify Status of **Power Lead Fuse**


SS ALT
DC MAIN
START BATT ALT
ON - OFF
NAV LIGHTS
MASTHEAD LIGHT
CABIN LIGHTS PORT
CABIN LIGHTS STBD
OUTLETS
INSTR LIGHTS
SALT WATER PUMP
DC REFRIG
FRESH WATER PUMP
LP GAS VALVE
BILGE PUMP
RADAR
SEA 222
VHF R/T
MSD PUMP
SAILING INSTR
WEATHER FAX
SAT PHONE
ENGINE ALARM
BILGE ALARM

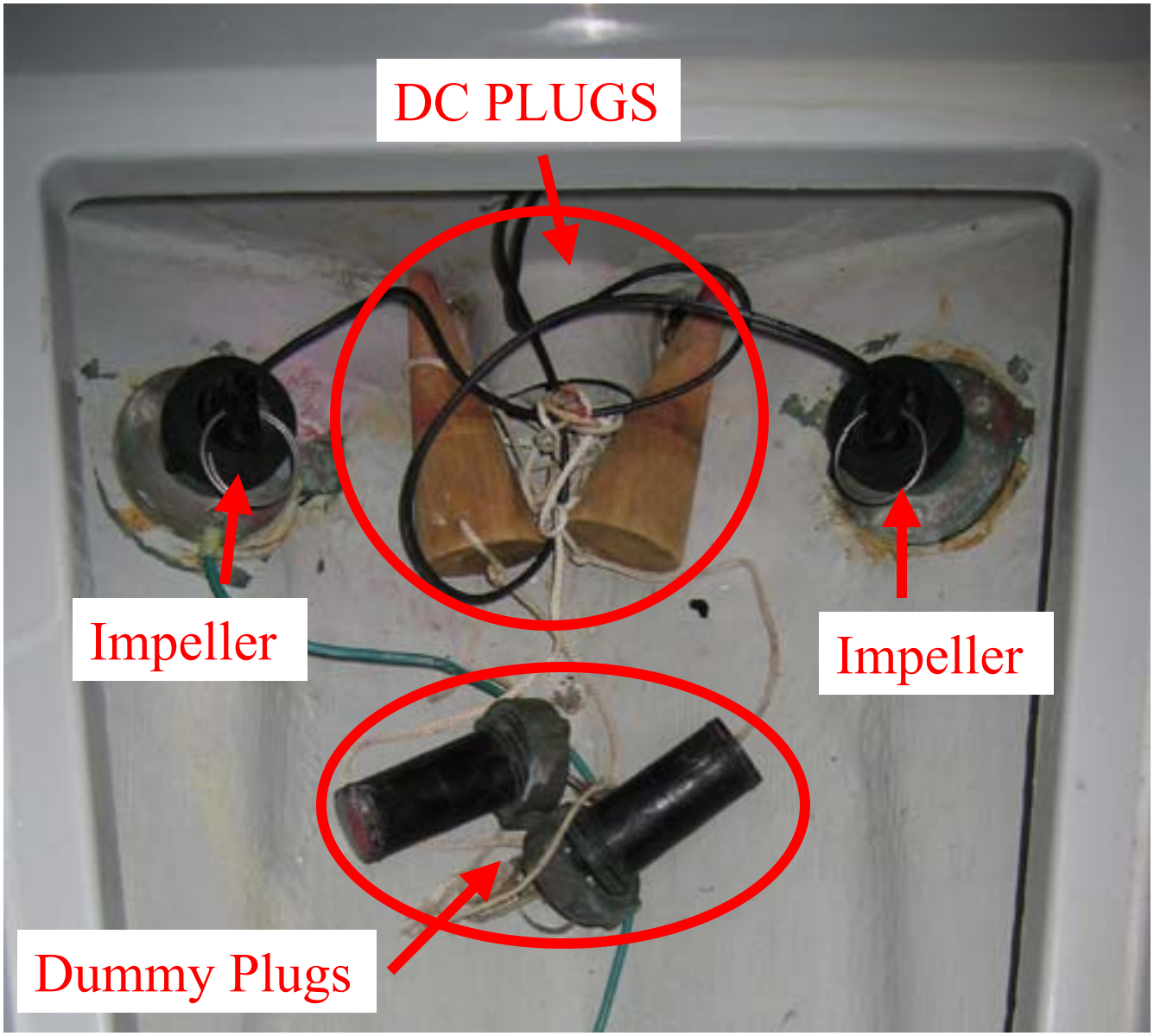

GROUND


WEFAX Fuses

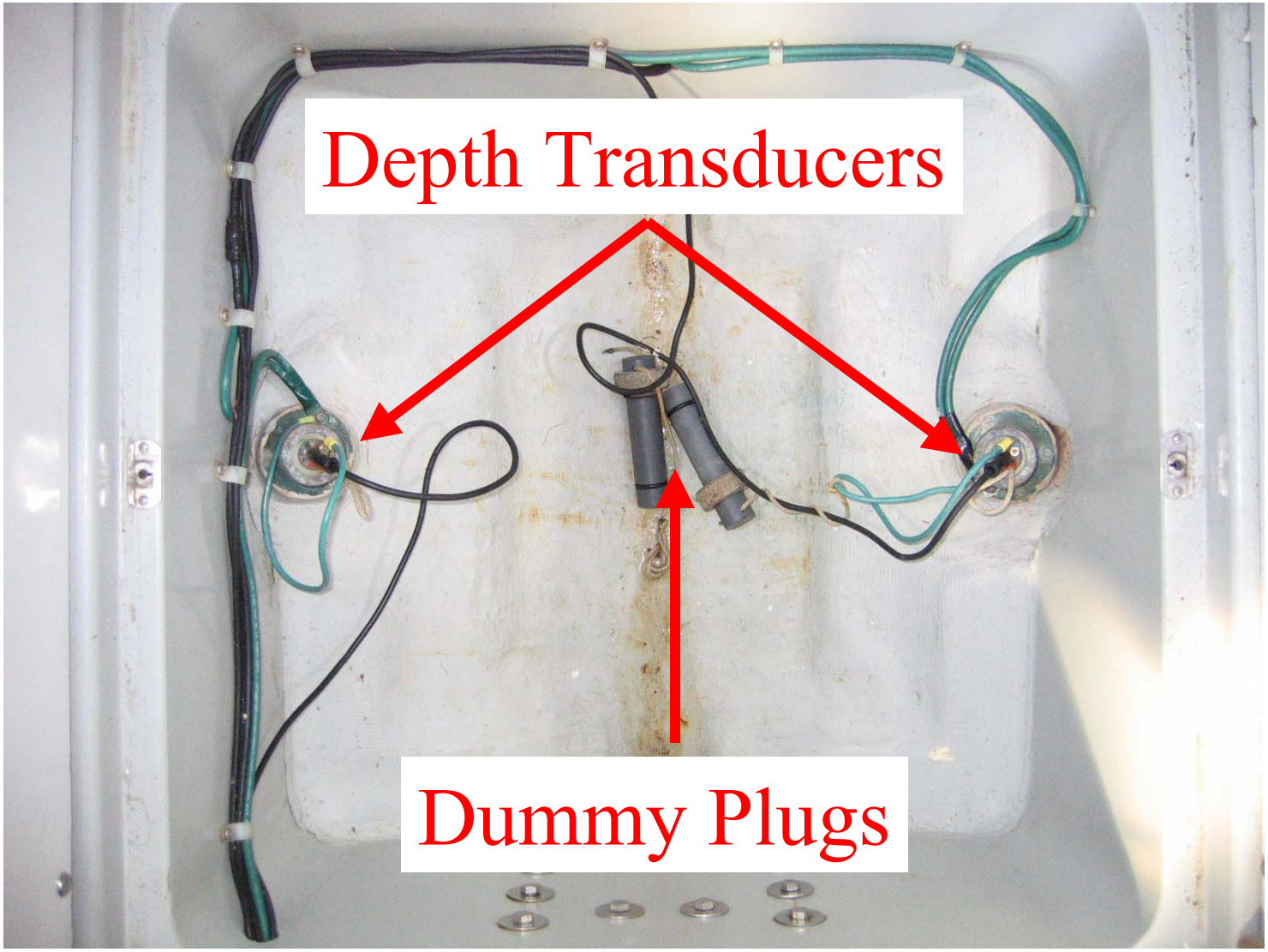


Instruments Power On But Do Not Display Data

- Speedo or Depth
  - Verify Speed impeller is clean
  - Depth Transducer is clean
  - Check Gravity Switch

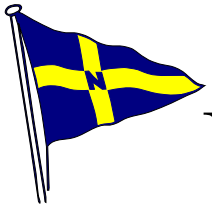

DC PLUGS
Impeller
Impeller
Dummy Plugs

Clean Speedo Impeller


Depth Transducers
Dummy Plugs

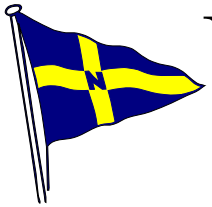

Depth Transducer


AUTO
AUTO
GRAVITY SWITCH
AUTO
AUTO
GRAVITY SWITCH



Unable to make contact on a Radio System

- Verify Correct Frequency
- Verify Transmitter Indicator is lit
- Call another Station
- Verify Antenna Connectors
- Change Radio System.
  - VHF
  - SSB

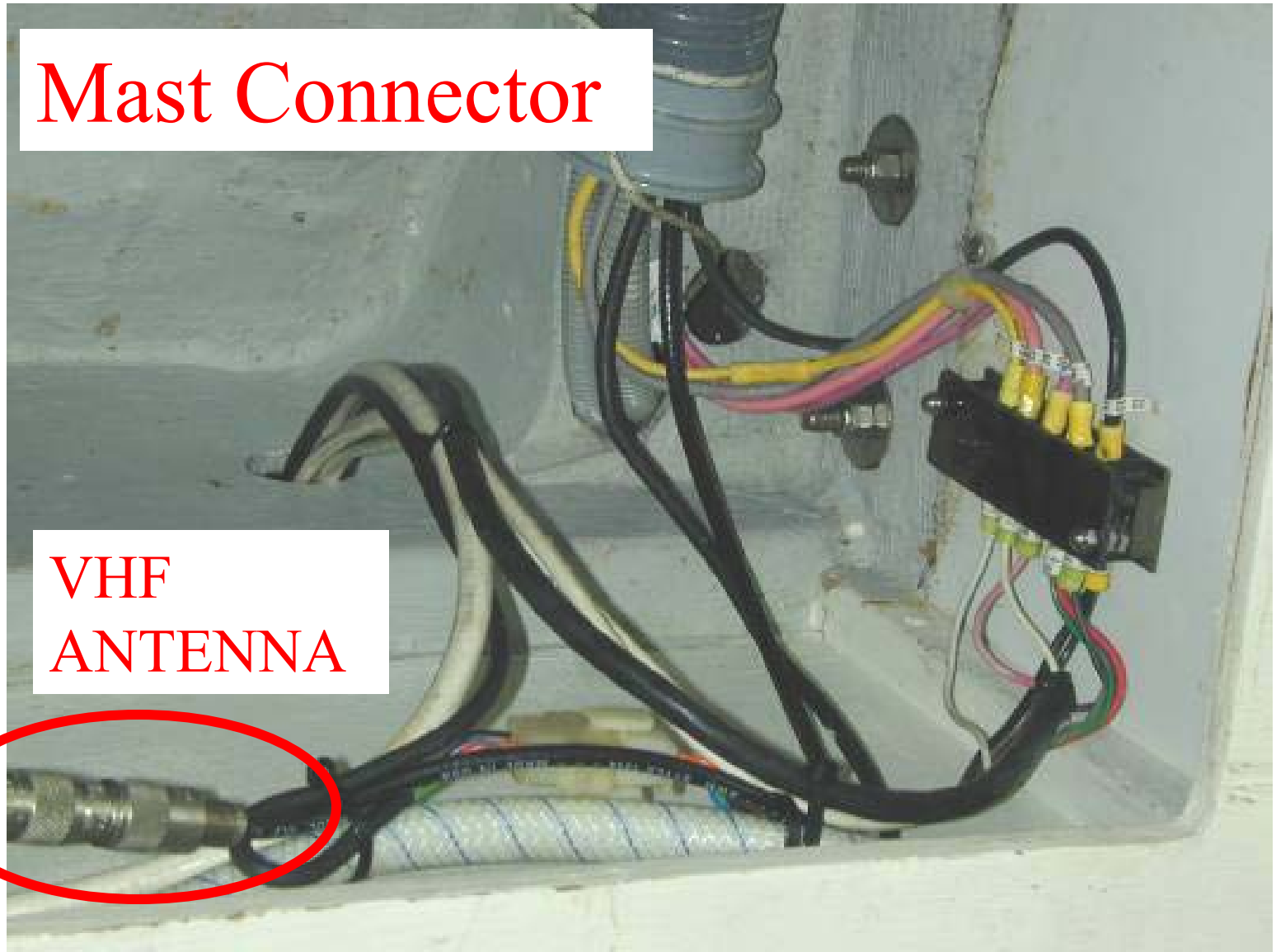


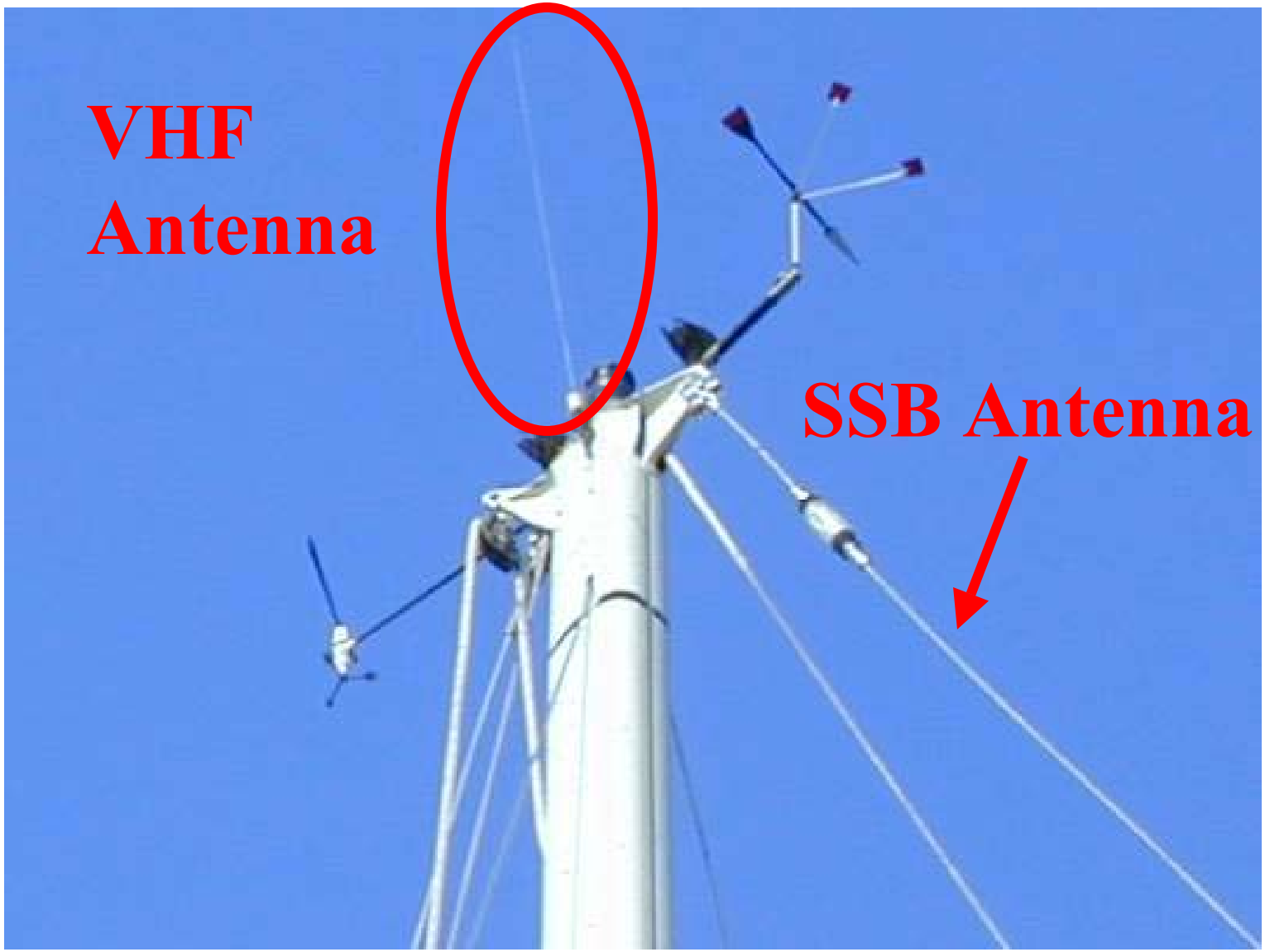
Unable to make contact on a Radio System

- Verify Antenna
  - Visually inspect Coax Cable and Connectors
  - Visually inspect Antenna
  - Inspect Antenna Wire to Back Stay
- For SSB determining Functioning of Antenna Coupler
  - Power
  - Switching

VHF & SSB PL 259 Antenna Connector

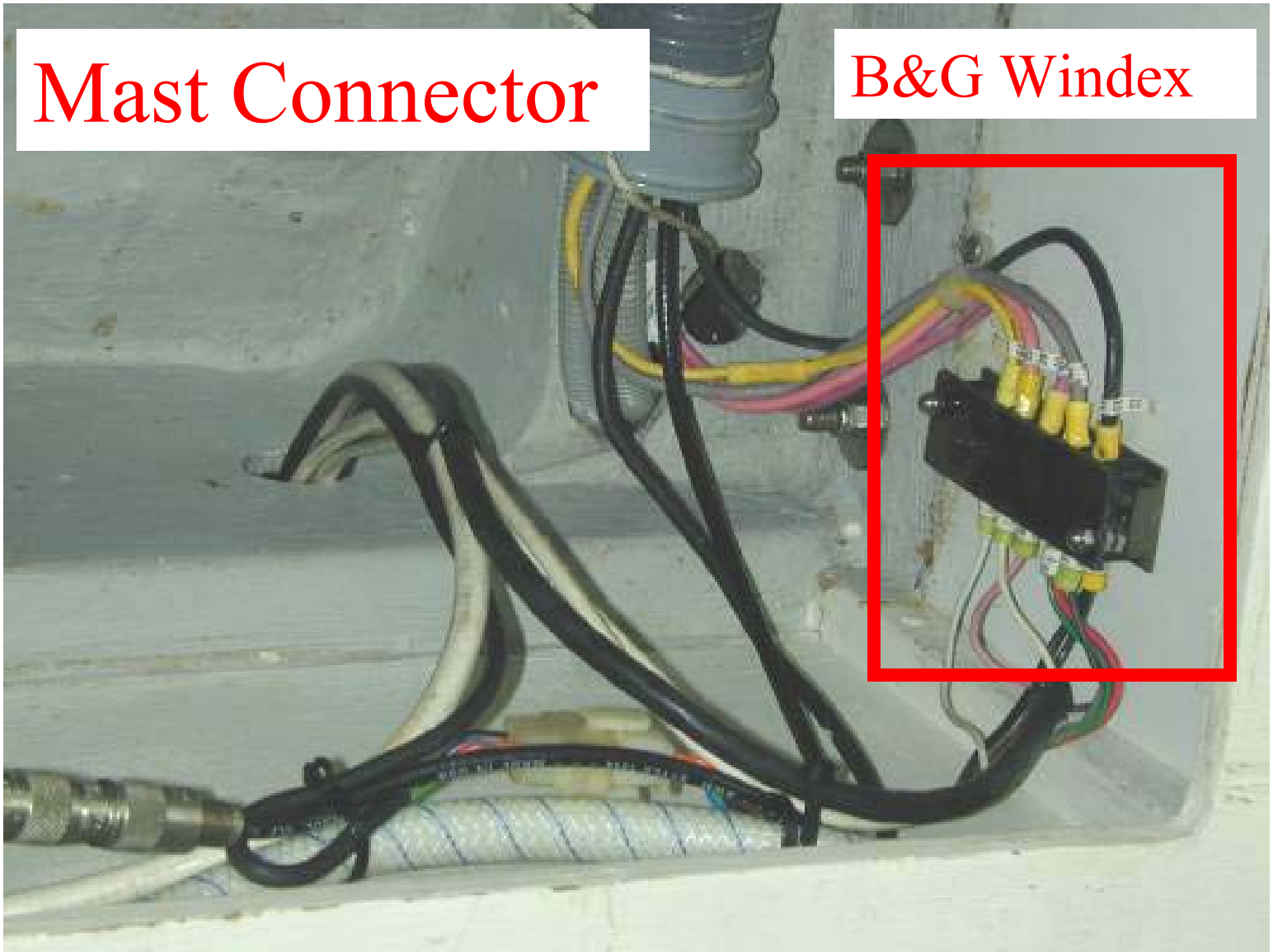
RADAR BNC Connector


Mast Connector
VHF
ANTENNA


VHF
Antenna
SSB Antenna

No Wind Readings

- Verify Page selection
- Verify Mast Head
  - Anemometer is Turning
  - Windex is Turning
- If they are not turning this is the problem.
- Verify Mast Junction.


Mast Connector
B&G Windex


Electronic
Windex

Questions?